

ABSTRACT OF THE DISCLOSURE

The present invention relates to a zinc-diffused nickel alloy coating for corrosion and heat protection and to a method for forming such a coating. The coating method broadly comprises the steps of forming a plain nickel or nickel alloy coating layer on a substrate, applying a layer of zinc over the nickel or nickel alloy coating layer, and thermally diffusing the zinc into the nickel alloy coating layer. The coating method may further comprise immersing the coated substrate in a phosphated trivalent chromium conversion solution either before or after the diffusing step. The substrate may be a component used in a gas turbine engine, which component is formed from a steel material.